AGRICULTURAL LAND CLASSIFICATION
FAVERSHAM LOCAL PLAN

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FAVERSHAM LOCAL PLAN

BACKGROUND

1.1 The local plan areas surveyed are divided into three separate sites in the vicinity of Faversham, north Kent. The sites are:

a) Abbey Farm, the largest site, situated immediately to the east of Faversham, straddling the Whitstable railway line. The site covers approximately 68.92 hectares.

b) Ospringe, situated immediately west of Faversham, it lies between the railway and the A2. The site covers approximately 5.02 hectares.

c) Waterham, situated 5 miles to the northeast of Faversham, immediately north of the Highstreet Road, west of Highstreet on the A299. The site covers approximately 9.23 hectares.

1.2 The sites were inspected on the 10th, 11th and 12th of December 1990, in connection with the Faversham local plan, using 110 and 120 cm Dutch augers, samples being taken at 100 m intervals across the sites. Five pits were dug, providing additional information about the soils.

ABBEY FARM, FAVERSHAM

Land Use

2.1 South of the railway line, the land was under cereals (stubble) orchards and hops. The area under hops was not surveyed due to the risk of disease transmission (Verticillium wilt). To the north of the railway most of the land was under stubble and weed growth (partly overgrown), with a small area south of the sewage pumping station having been ploughed.

Relief and Climate

2.2 The site lies between 4 and 15 m A.O.D., falling towards the centre of the area. Gradient is not a significant limitation in terms of land quality at this location.

2.3 The average rainfall at this locality ranges from 626 mm in the north of the site to 649 mm in the southeast (Met Office 1989). The median accumulated temperature above 0°C between January and June, a measure of the relative warmth of the locality, varies between 1487 day degrees in the southeast of the site to 1493 day degrees in the north of the site (Met Office 1988). The site has between 125 and 131 field capacity days, increasing southwards (Met Office 1989). The moisture deficits for wheat and potatoes are 125-126 mm and 123-124 mm respectively (Met Office 1989).

2.4 Climate factors per se place no limitations upon agricultural land quality, but do affect interactive limitations between soil and climate, namely soil wetness and droughtiness. At this location high moisture deficits leads to greater risk of soil droughtiness than would be expected in many similar soils elsewhere.

Geology and Soils

2.5 The published Geological Survey of England and Wales (Map Sheet 273 - drift) (BGS, 1974) shows the site to be underlain by Thanet Beds (fine sandy marine deposits) and Upper Chalk. Above this underlying solid geology is Head Brickearth (porous yellow/brown loam) covering all but a small area south of the railway, where the Thanet Beds are the uppermost geology. Head brickearth has been dug periodically from much of the site during the past for use in the local brick industry.

2.6 The Soil Survey of England and Wales Sheet 6, Soils of Southeast England (SSEW, 1983) shows the site to comprise soils belonging to the Hamble 2 association.

2.7 Detailed field examination of the soil revealed six main soil variants; three in the areas possibly worked for brickearth and three in areas believed to have been largely undisturbed.

2.8 The first type of soil are those believed to be within undisturbed areas, and comprise deep silty soils over sandy loam and clay, consisting of a dark or very dark greyish brown, stoneless, non or slightly calcareous silt loam topsoil, over a brown or dark yellowish brown silt loam or medium clay loam upper subsoil. At approximately 50 cm depth, subsoils of clay, heavy clay loam, or occasionally sandy clay loam and sandy loam are found. The subsoils contain no evidence of restricted drainage within 90 cm, so are placed in wetness class I. These soils occur in various locations north and south of the railway line.

2.9 The second type of soil, are those in the areas believed to be undisturbed, and comprise imperfectly drained loamy over slowly permeable clay and sandy clay soils, consisting of a dark or very dark greyish brown (10YR 4/2, 3/2, 3/3) non or slightly calcareous, stoneless, medium clay loam, silt loam or silty clay loam topsoil over a yellowish brown or brown (10YR 5/3, 5/4), medium clay or heavy clay loam, usually gleyed, becoming slowly permeable clay or sandy clay at 45 cm+, and consequently placed in wetness class III with wetness being the main limitation to land quality. These occur in the western part of the area to the south of the railway line.

2.10 The third type of soil are also those believed to be on the undisturbed areas, comprising well drained deep loamy soils over clay and sandy clay, consisting of dark greyish brown (10YR 4/2), non or slightly calcareous, stoneless, medium clay loam or fine sandy clay loam topsoils over progressively heavier heavy clay loam, clay or fine sandy clay subsoils. No evidence of restricted drainage is seen in the soil, thus placing the soils in wetness class I. These soils occur in various locations north and south of the railway line.

2.11 The fourth soil type, found in areas which have been worked for brickearth comprise silty soils over fine sandy loam. They have dark brown (10YR 3/3), non calcareous, stoneless, silt loam topsoils, over dark yellowish brown (10YR 4/4) silt loam upper subsoils. A yellowish brown (10YR 5/4) fine () sandy loam subsoil is found below about 50 cm. This may well be part of the underlying Thanet Beds and reflect a remnant of the silty drift over the Thanet Beds. Soils show no evidence of restricted drainage and are hence placed in wetness class I. These soils are found in a small area in the east of the site, north of the railway line.

2.12 The fifth soil type, found on the disturbed/possibly disturbed areas, comprises dark or very dark greyish brown, stoneless sometimes calcareous medium clay loam or silty clay loam topsoils over heavier subsoils typically increasing in clay content with depth to become heavy clay loams and medium clay. Occasionally sandier subsoils, such as fine sandy silt loams, fine sandy clay loams and fine sandy clay are found. Evidence of restricted drainage of the soils is sometimes found, thus assigning these soils chiefly to wetness class I, though with some less well drained variants in wetness class II and III. These soils are found over much of the western part of the site.

2.13 The sixth soil type comprises more obviously disturbed soils, ie. dark brown or very dark greyish brown non or slightly calcareous, rubbly, fine sandy silt loam or silt loam topsoil, over variable subsoils including fine and medium sandy loams, medium silty clay loam and fine sandy clay loam, many containing brick and rubble. The soils are well drained, placing the soils in wetness class I, but many are impenetrable in the subsoil due to brick and rubble layers.

AGRICULTURAL LAND CLASSIFICATION

3.1 The ALC grading of the survey area is primarily determined by interactions between climate and soil factors, namely wetness and droughtiness. ALC grades 1, 2 and 3a been mapped, and a breakdown of these grades in terms of area and extent is given below.

Grade	ha	% of total agricultural land
1	14.97	24%
2	34.01	55%
3a	13.27	21%
non agricultural		
total agricultural		
total		

3.2 Appendix 1 gives a generalized description of the grades and subgrades identified in this survey.

Grade 1

3.3 Land of this quality occupies approximately 24% (14.97 ha) of the total agricultural area of the site. Due to the relatively low rainfall and high moisture deficits on this site, only those soils with very high water holding capacity are likely to be unaffected by drought. Soils with this high water holding capacity mainly consist of loamy topsoils, over silt loam, fine sandy silt loam, medium silty clay loam or clay loam subsoils, to a depth of 50 cm or more. Lower subsoils are generally medium clays, fine sandy clay loams, heavy clay loams or fine sandy loams.

This grade is made up of those soils described in sections 2.8 and 2.11, and so includes some possibly disturbed soils, where the silt loam is deep over fine sandy loam subsoils. All soils are well drained, there being no evidence of restricted drainage, and are thus placed in wetness class I. No physical limitations affect the agricultural potential of this land to any significant extent.

Grade 2

3.4 Land of this quality occupies approximately 55% (34.01 ha) of the total agricultural area of the site. This grade is made up primarily of those soils described in sections 2.10 and 2.12. Though the soils generally have loamy textured topsoils and upper subsoils, they are

generally affected by minor droughtiness limitations due to the high moisture deficits found on this site. This is the chief limitation of those soils described in section 2.10 in the undisturbed areas. The soils described in section 2.10 and 2.12 overlie progressively heavier subsoils. Those soils of the type described in 2.10 are not affected by any wetness limitation and are so placed in wetness class I. By contrast the soils described in 2.12 are less well drained, with many of the soils showing evidence of impeded drainage, with mottling and gleying found in subsoils (varying from 27-70 cm) and slowly permeable heavy clay loam, sandy clay or medium clay subsoils found below 50 cm. This places these soils into wetness class II and therefore the soils show a slight wetness limitation in addition to droughtiness which places the soils in Grade 2. Occasional profiles are affected by groundwater.

Grade 3a

3.5 Land of this quality occupies approximately 21% (13.27 ha) of the total agricultural area of the site. This grade is made up primarily of those soils described in section 2.9 and 2.13. Soils of the type described in 2.9, on the undisturbed area, are found to the southeast of the site. The chief limitation of these soils is that of soil wetness indicated by the presence of gleying and a slowly permeable subsoil layer above 45 cm depth. This places the soils in wetness class III and given the topsoil textures the soils show a wetness/workability limitation which places them in Grade 3a.

Towards the west of the site soils belonging to the type described in 2.13 are present. These have been more obviously disturbed, and contain brick, rubble, much sand and stone. The soils are often impenetrable in the subsoils. Droughtiness is the limiting factor in these soils, due to the presence of rubble, impenetrable horizons and sandy soil textures. This droughtiness lowers the grade to 3a due to the soils having only a moderate available water capacity.

OSPRINGE

Land Use

West of the path which crosses the site the land was under cereal stubble. To the east of the path the land has been ploughed with part of the area placed under strawberries.

Relief and Climate

4.1 The site lies between 15 and 25 m A.O.D. falling towards the east. Gradient is not a significant limitation in terms of land quality at this location.

4.2 The average annual rainfall on this site is 657 mm (Met Office 1989). The median accumulated temperature above 0°C between January and June, a measure of the relative warmth of the locality is 1430 day degrees (Met Office 1989). The site has 133 field capacity days. Moisture deficits for wheat and potatoes are 121 mm and 116 mm respectively.

Geology and Soils

4.3 The Geological Survey of England and Wales (Sheet 273 drift) (BGS, 1974) shows the site to be underlain by Upper Chalk. However, the entire site is covered by a superficial deposit of Head Brickearth (porous yellow/brown loam).

4.4 The Soil Survey of England and Wales Sheet 6, Soils of South-east England (SSEW, 1983), shows the site to consist of soils belonging to the Hamble 1 association.

4.5 Detailed field examination revealed there to be one broad soil type, consisting non calcareous, non or very slightly stony (less than 2% flints), dark brown or dark/very dark brown silt loam topsoil, over silt loams, sandy silt loams, medium clay loams and medium/heavy silty clay loam. Lower in the profile gravel may be found. All soils are well drained and are thus assigned to wetness class I.

AGRICULTURAL LAND CLASSIFICATION

5.1 The ALC grading of the survey area is primarily determined by interactions between climate and soil factors, namely wetness and droughtiness. ALC grades 1 and 2 have been mapped, and a breakdown of these grades in terms of area and extent is given below:

Grade	ha	% of total agricultural land
1	3.20	64
2	1.82	36
Total agricultural area	5.02	

5.2 Appendix 1 gives a generalized description of the grades identified in this survey.

Grade 1

5.3 Land of this quality occupies approximately 64% (32 ha) of the total agricultural land in the site. Soil profiles are as those described in section 6.5, namely well drained deep soils, consisting of a silt loam topsoil over a silt loam, medium clay loam, sandy silt loam or heavy/medium clay loams. No evidence of poor drainage is found in these soils, they are thus assigned to wetness class I.

Due to their silty topsoils and loamy subsoils these soils contain large amounts of available water, and are not significantly affected by drought. No physical limitations affect the agricultural potential of this land to any significant extent.

Grade 2

5.4 Land of this quality occupies approximately 36% (1.82 ha) of the total agricultural and on the site. Soil profiles are the shallower variants of those described in section 4.5, namely well drained soils over gravel between 60 and 70 cm depth, consisting of silt loams topsoils over silt loam, medium clay loam and sandy silt loam subsoils

over gravel. The soils are placed in wetness class I, as no evidence of restricted drainage is found.

Droughtiness causes the slight reduction in grade, due to the presence of gravel in the lower subsoil, which reduces the available water capacity.

WATERHAM

Land Use

6.1 The entire site is under permanent pasture.

Relief and Climate

6.2 The site lies between about 10 and 17 m A.O.D. falling gently westward. Gradient is not a significant limitation in terms of land quality at this location.

6.3 The average annual rainfall for this site is 596 mm (Met Office 1989). The median accumulated temperature above 0°C between January and June, a measure of the relative warmth of the locality is 1482 day degrees (Met Office 1988). The site has 121 field capacity days. Moisture deficits for wheat and potatoes are high at 127 mm and 124 mm respectively.

6.4 Climatic factors per se place no limitations upon agricultural land quality but do affect interactive limitations between soil and climate namely soil wetness and droughtiness. In this site relatively low rainfall and very high moisture deficits leads to greater soil droughtiness than would be expected in similar soils elsewhere.

Geology and Soils

6.5 The Geological Survey of England and Wales (Sheet 273 drift) (BGS, 1974) shows the Waterham site to be underlain by London Clay (Blue/grey clay).

6.6 The Soil Survey of England and Wales, Sheet 6, Soils of South-east England (SSEW, 1983) shows the soils on the site belonging to the *Windsor association, ie. "slowly permeable clayey soils over Eocene* clay" (SSEW, 1983).

6.7 Detailed field examination of the soil showed one broad soil type across the site, the soils being very uniform and comprising a thin (4-7 cm), dark brown (10YR 4/3), stoneless, non or very slightly calcareous, root mottled (7.5YR 5/4), heavy clay loam or medium clay upper topsoil, containing many roots. This overlies a brown, stoneless or slightly stony (<2% chalk/flints), non or slightly calcareous (10YR 5/3), mottled and gleyed (10YR 4/1, 7.5YR 5/4), heavy clay loam or medium clay lower topsoil. The lower topsoil overlies a light yellowish brown (10YR 6/3), stoneless or slightly stony (<2% chalk/flints), mottled and gleyed (10YR 6/2 and 7.5YR 5/6), medium clay. This overlies a brown (7.5YR 5/2), stoneless, mottled and gleyed (10YR 6/1, 7.5YR 5/6), poorly structured and slowly permeable heavy clay.

AGRICULTURAL LAND CLASSIFICATION

7.1 The ALC grading of the survey area is primarily determined by interactions between climate and soil factors namely wetness in this instance. ALC grade 3 has been mapped over the entire site.

7.2 Appendix 1 gives a generalized description of the grades.

Grade 3b

7.3 Land of this quality occupies 100% (9.23 ha) of the site. Soil profiles are as those described in section 4.7, namely gleyed heavy clay loams and clay over clay becoming slowly permeable about 50 cm depth, thus assigning these soils to wetness class III. There is a slight droughtiness limitation in these soils due to the very heavy subsoils and high moisture deficits. However the overriding limitation is that of soil wetness and workability, which is brought about by restricted soil drainage, as evidenced by the presence of gleying throughout the soil and a slowly permeable layer within about 50 cm. Therefore the soils are assigned to wetness class III which

when associated with the heavy textured and predominantly non calcareous topsoil of this site places the land in Grade 3b.

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3. MET. OFFICE (1989), Climatological Datasets for agricultural land classification.

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APPENDIX 1

DESCRIPTION OF THE GRADES AND SUBGRADES

The ALC grades and subgrades are described below in terms of the types of limitation which can occur, typical cropping range and the expected level and consistency of yield. In practice, the grades are defined by reference to physical characteristics and the grading guidance and cut-offs for limitation factors in Section 3 enable land to be ranked in accordance with these general descriptions. The most productive and flexible land falls into Grades 1 and 2 and Subgrade 3a and collectively comprises about one-third of the agricultural land in England and Wales. About half the land is of moderate quality in Subgrade 3b or poor quality in Grade 4. Although less significant on a national scale such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates. The remainder is very poor quality land in Grade 5, which mostly occurs in the uplands.

Descriptions are also given of other land categories which may be used on ALC maps.

Grade 1 – excellent quality agricultural land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2 – very good quality agricultural land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

Grade 3 – good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

Subgrade 3a – good quality agricultural land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 3b – moderate quality agricultural land

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

Grade 4 – poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (eg cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5 – very poor quality agricultural land

Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

Descriptions of other land categories used on ALC maps

Urban

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: golf courses, private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Woodland

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm woodland.

Agricultural buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg polythene tunnels erected for lambing) may be ignored.

Open water

Includes lakes, ponds and rivers as map scale permits.

Land not surveyed

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above land cover types, eg buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will usually be shown.

APPENDIX II

FIELD ASSESSMENT OF SOIL WETNESS CLASS

SOIL WETNESS CLASSIFICATION

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six revised soil wetness classes (Hodgson, in preparation) are identified and are defined in Table 11.

Table 11 Definition of Soil Wetness Classes

Wetness Class	Duration of Waterlogging[1]
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years[2].
II	The soil profile is wet within 70 cm depth for 31-90 days in most years *or*, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but not wet within 40 cm depth for more than 30 days in most years.
III	The soil profile is wet within 70 cm depth for 91-180 days in most years *or*, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 180 days,but only wet within 40 cm depth for between 31 and 90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days but not within 40 cm depth for more than 210 days in most years *or*, if there is no slowly permeable layer within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

[1] The number of days specified is not necessarily a continuous period.

[2] 'In most years' is defined as more than 10 out of 20 years.

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics, site and climatic factors. Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field. The method adopted here is common to ADAS and the SSLRC.